

WHAT IS CLAIMED IS:

1. A deflection yoke comprising:

a pair of saddle-type horizontal deflecting coils  
located symmetrically with respect to a central axis  
5 and having the shape of a truncated pyramid;

a magnetic core coaxial with the central axis,  
located on an outer peripheral side of the horizontal  
deflecting coils, and having the shape of a truncated  
cone; and

10 a pair of vertical deflecting coils toroidally  
wound around the magnetic core,

if the position of a horizontal axis perpendicular  
to the central axis and the position of a vertical axis  
perpendicular to the central axis and the horizontal  
15 axis are given by  $0^\circ$  and  $90^\circ$ , respectively, in the  
direction of the circumference of a circle around the  
central axis, the winding of one of the vertical  
deflecting coils having a starting point on the  
horizontal-axis side within the range of  $5^\circ - 30^\circ$  and  
20 being distributed continuously or intermittently from  
the starting point to  $90^\circ$  and wound symmetrically with  
respect to the vertical axis, and the respective  
windings of the one vertical deflecting coil and the  
other vertical deflecting coil being wound  
25 symmetrically with respect to a horizontal axis.

2. A deflection yoke according to claim 1,  
wherein said one of the vertical deflecting coils has

a plurality of parts in which the winding distribution is close as the coil is wound and which are located near the ranges of  $20^{\circ}$  -  $40^{\circ}$  and  $60^{\circ}$  -  $80^{\circ}$  at the least.

5           3. A deflection yoke according to claim 1, wherein each of the horizontal deflecting coils has a large-diameter end and a small-diameter end, the small-diameter end having a bendless shape without any bends in a direction perpendicular to the central axis.

10           4. A deflection yoke according to claim 3, which further comprises a coma coil located coaxially with the central axis of the horizontal deflecting coils and at a distance from the small-diameter end of the horizontal deflecting coil in the direction of the  
15           central axis, and wherein  $L_1$ ,  $L_2$  and  $L_3$  are set to have relations:

$$L_1 > L_2 > L_3,$$

$$L_3 = 0.6 \times L_2 - 0.8 \times L_2,$$

20           where  $L_1$  is an effective length of the horizontal deflecting coil in the direction of the central axis,  $L_2$  is the length of the core in the direction of the central axis, and  $L_3$  is the distance between a small-diameter end of the core and the coma coil in the direction of the central axis.

25           5. A cathode ray tube apparatus comprising:  
a vacuum envelope including a panel having  
a phosphor screen formed on an inner surface thereof,

a funnel fixed to the panel, a cylindrical neck fixed to a small-diameter end of the funnel, and a yoke mounting portion substantially in the shape of a truncated pyramid and ranging from the neck to  
5 an outer periphery of the funnel;

an electron gun which is located in the neck of the vacuum envelope and emits electron beams toward the phosphor screen; and

a deflection yoke which is mounted on the outside  
10 of the yoke mounting portion and deflects the electron beams in horizontal and vertical directions,

the deflection yoke including a pair of saddle-type horizontal deflecting coils located symmetrically with respect to a central axis and having the shape of a truncated pyramid, a magnetic core coaxial with the  
15 central axis, located on an outer peripheral side of the horizontal deflecting coils, and having the shape of a truncated cone, and a pair of vertical deflecting coils toroidally wound around the magnetic core,

20 if the position of a horizontal axis perpendicular to the central axis and the position of a vertical axis perpendicular to the central axis and the horizontal axis are given by  $0^\circ$  and  $90^\circ$ , respectively, in the direction of the circumference of a circle around the  
25 central axis, the winding of one of the vertical deflecting coils having a starting point on the horizontal-axis side within the range of  $5^\circ - 30^\circ$  and

being distributed continuously or intermittently from the starting point to 90° and wound symmetrically with respect to the vertical axis, and the respective windings of the one vertical deflecting coil and the other vertical deflecting coil being wound symmetrically with respect to a horizontal axis.

6. A cathode ray tube apparatus according to claim 5, wherein said one of the vertical deflecting coils has a plurality of parts in which the winding distribution is close as the coil is wound and which are located near the ranges of 20° - 40° and 60° - 80° at the least.

7. A cathode ray tube apparatus according to claim 5, wherein each of the horizontal deflecting coils has a large-diameter end and a small-diameter end, the small-diameter end having a bendless shape without any bends in a direction perpendicular to the central axis.

8. A cathode ray tube apparatus according to claim 7, which further comprises a coma coil located coaxially with the central axis of the horizontal deflecting coils and at a distance from the small-diameter end of the horizontal deflecting coil in the direction of the central axis, and wherein L1, L2 and L3 are set to have relations:

$$L1 > L2 > L3,$$

$$L3 = 0.6 \times L2 - 0.8 \times L2,$$

where  $L_1$  is the effective length of the horizontal  
deflecting coil in the direction of the central axis,  
 $L_2$  is the length of the core in the direction of the  
central axis, and  $L_3$  is the distance between a small-  
5 diameter end of the core and the coma coil in the  
direction of the central axis.